

REMARKS

Claims 2 and 8 have been amended to correct the informalities noted by the Examiner.

In the Office action, the claims were rejected as follows:

(1) Claims 1-4, 6-7, 9-10 and 13 were rejected as unpatentable over U.S. Patent No. 6,689,641 (Ohta et al.) in view of the Haji et al. patent.

(2) Claims 11-12 were rejected as unpatentable over the Ohta et al. and Haji et al. patents in view of U.S. Patent No. 6,602,803 (Yew et al.).

(3) Claims 5 and 8 were rejected as unpatentable over the Ohta et al. and Haji et al. patents in view of U.S. Patent No. 5,807,787 (Fu et al.).

Applicant respectfully requests reconsideration in view of the amendments to the claims and the remarks below.

Independent claim 1 has been amended to clarify that (i) the plasma is irradiated onto the conductive wires, as well as the first conductive wiring layer and the circuit element and; and (ii) a second conductive wiring layer is formed, after the irradiation, by selective removal of the conductive film at the rear surface. Examples of those features are disclosed, respectively, in FIGS. 7A and 9 of the pending application. In the example of FIG. 9, the second conductive wiring layer is identified by reference numeral 12B.

Those features, and the subject matter of claim 1 as a whole, are not disclosed or suggested by the cited references.

The Ohta et al. patent discloses a method of producing a wiring board.

The Office action relies on the Haji et al. patent for its disclosure of attaching a semiconductor chip to a substrate and using plasma irradiation.

FIG. 7 of the Haji et al. patent illustrates a plasma etching apparatus in which a semiconductor element 12 mounted on a substrate 11 is etched. The gold wiring 15, however, is connected between the semiconductor element 12 and layer 23 of the metal electrodes 14 only after the substrate 12 is removed from the plasma etching apparatus (*see* FIG. 6; col. 4, lines 31-34). Therefore, there is no disclosure of "irradiating plasma onto . . . the conductive wires" as

recited in pending claim 1. Nor would a person of ordinary skill been motivated to modify the technique of the Haji et al. patent by performing the plasma irradiation after connecting the circuit element to the first conductive wiring layer via conductive wires. Indeed, the Haji et al. patent emphasizes the reasons for performing the plasma irradiation before attaching the gold wiring 15:

According to this method of manufacturing an electronic component, the nickel compound on the surface of the gold layer that interferes bonding of gold wire are removed by plasma cleaning. Therefore, the gold layer may be extremely thin, and the gold wire can be favorably bonded, and the solder portion such as solder bump may be also formed favorably.

(Col. 2, lines 12-18) Therefore, even if one were to somehow combine the disclosure of the Haji et al. patent with the disclosure of the Ohta et al. patent, that would only have suggested plasma irradiating the semiconductor chip prior to attachment to a substrate so as to improve the bonding of the gold wiring.

In addition, neither the Ohta et al. patent or the Haji et al. patent discloses forming a second conductive wiring layer, after the irradiation, by selective removal of the conductive film at the rear surface.

At least for the foregoing reasons, claim 1 should be allowed.

The remaining claims depend from claim 1. The Yew et al. and Fu et al. patents also do not disclose or suggest the features missing from the Ohta et al. and Haji et al. patents. Therefore, all the pending claims should be allowed.

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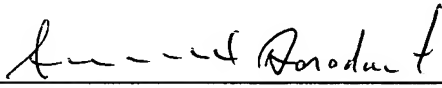
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It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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